HydroMatx CleanTech Private Limited

PRODUCT CATALOG

High Quality Electrolyser Components

ABOUT US

HydroMatx is an India-based clean-tech company enabling the green hydrogen ecosystem through component sourcing. We work with R&D labs, startups, OEMs, and pilot teams to support testing, validation, and early deployment. Our focus is bipolar plates, gas diffusion layers, porous transport layers, and fuel cell components, delivered through low-MOQ, specification-driven engagement, global supplier access, and transparent technical discussions supporting India's transition to sustainable hydrogen technologies across research and industry.

GDL

Gas Diffusion Layer (GDL) is a critical component used in PEM fuel cells and hydrogen energy systems. It enables efficient gas transport, effective water management, and high electrical conductivity, helping improve stack performance, durability, and stability.

Images are illustrative and AI-generated for reference.

Key Strengths

- Balances high gas permeability and mechanical strength
- Tailored for peak performance in diverse conditions
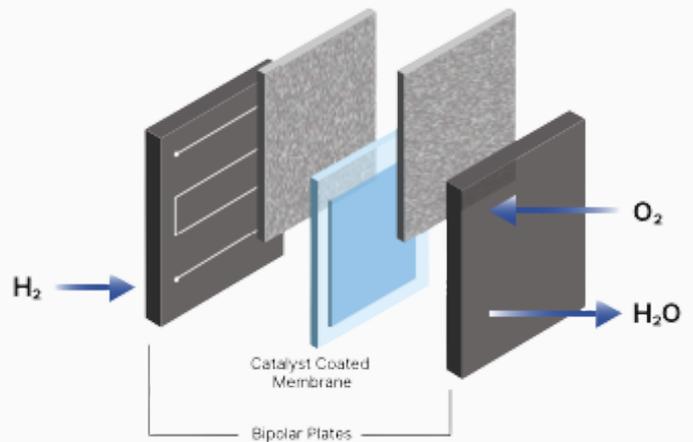- Engineered to prevent degradation and maximize stack lifetime

Use Cases

- PEM & Mobility Fuel Cells
- Stationary Systems
- R&D & Pilot Testing

Material & Construction

- Carbon paper substrate
- Optional microporous layer (MPL)
- Hydrophobic treatment available

Parameter	Available Range
Thickness	180 – 320 μm
Compressed Thickness	140 – 270 μm
Electrical Resistance	≤ 15 mΩ·cm²
Areal Weight	55 – 110 g/m²
Through-Plane Gas Permeability	≤ 0.5 – 10 cm³/cm²·s
In-Plane Permeability	≤ 15 – ≤ 100 mbar
High/Low Humidity Operation	≥50%

Titanium Bipolar Plate

Bipolar plates form the core structural and electrical backbone of fuel cell and electrolyzer stacks. They distribute reactant gases, collect current, manage heat, and provide mechanical support to the stack, directly influencing efficiency, durability, and system performance.
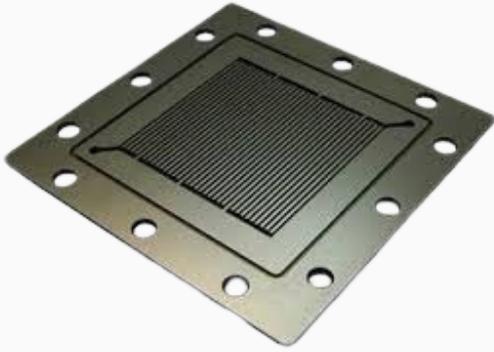
Images are illustrative and AI-generated for reference.

Key Strengths

- Excellent corrosion resistance in acidic and electrochemical environments
- High electrical conductivity for efficient current collection
- Lightweight titanium construction
- Customizable flow field designs for stack optimization
- Suitable for long-duration and pilot-scale operation

Use Cases

- PEM Fuel Cells
- PEM & AEM Electrolyzers
- Hydrogen pilot plants
- R&D and stack validation
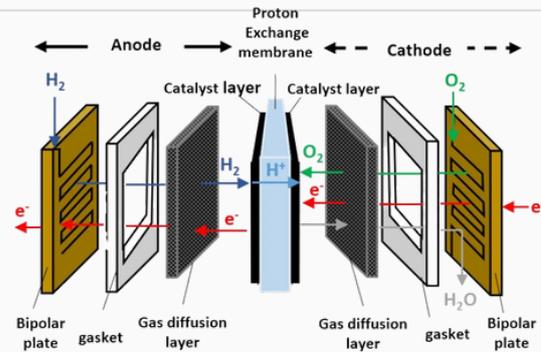
Material & Construction

- Titanium substrate (GR1 / GR2 / GR5)
- Machined or etched flow fields
- Smooth surface finish
- Custom dimensions as per stack design

Parameter	Available Range
Material	Titanium
Grades	GR1 / GR2 / GR5
Manufacturing	Etching / CNC machining
Flow Field	Serpentine / Interdigitated / Custom
Surface Finish	Smooth
Customization	Size, thickness & geometry as per stack design
High/Low Humidity Operation	≥50%

Titanium Porous Transfer Layer

Porous Transport Layers (PTLs) are positioned between the catalyst layer and bipolar plate in electrochemical cells. In electrolyzers, PTLs enable uniform gas and water transport, support catalyst layers, and improve electrochemical efficiency under high current density operation.
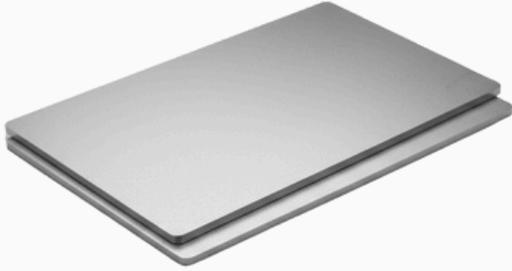

Images are illustrative and AI-generated for reference.

Key Strengths

- High porosity for efficient gas & liquid transport
- Excellent corrosion resistance in PEM/AEM environments
- Mechanically stable under high current densities
- Suitable for long-duration electrolyzer operation

Use Cases

- PEM Water Electrolyzers
- AEM Water Electrolyzers
- Green hydrogen pilot plants
- R&D & stack validation
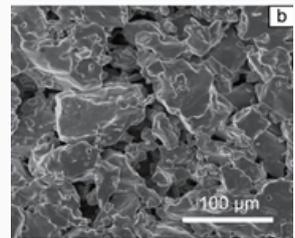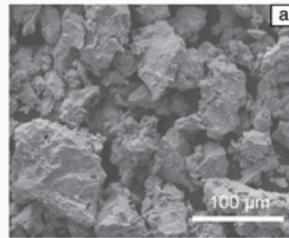
Material & Construction

- Titanium substrate (GR1 / GR2)
- Powder sintered porous structure
- Optional catalyst coatings (Pt, Ir-Ta, Ru-Ir)
- Plate or fiber-felt formats available

Parameter	Available Range
Material	Titanium (GR1 / GR2)
Thickness	0.5 – 50 mm
Pore Size	0.2 – 150 μm
Porosity	30 – 40%
Thermal Conductivity	6.7 – 7.5 W/m·K
Surface Finish	Smooth, metallic
Manufacturing Method	Powder sintering
Coating Options	Pt / Ir-Ta / Ru-Ir (optional)

Anion Exchange Membrane

High-performance anion exchange membrane (AEM) designed for AEM water electrolyzers used in green hydrogen production. It enables efficient hydroxide ion transport while maintaining excellent mechanical stability and chemical durability, helping reduce system cost and improve electrolyzer efficiency compared to conventional PEM and alkaline technologies.


Images are illustrative and AI-generated for reference.

Key Strengths

- High Ionic Conductivity
- Excellent Chemical Stability
- Low Gas Crossover
- Mechanical Robustness
- Cost-Optimized Electrolysis

Use Cases

- AEM Water Electrolyzers
- Green Hydrogen Pilot Plants
- R&D and Technology Validation
- Renewable-coupled Electrolysis Systems
- Industrial Hydrogen Generation
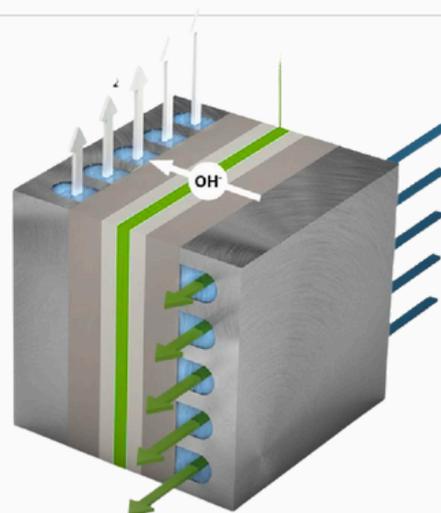
Material & Construction

- Anion exchange polymer membrane
- Available in free-standing and reinforced configurations
- Designed for pressurized and dynamic electrolyzer operation
- Optimized for integration into AEM stack architectures

Parameter	Available Range
Membrane Type	Anion Exchange Membrane (AEM)
Typical Thickness	~65 – 75 μm
Ionic Conductivity	> 95 mS/cm
Operating Temperature	~60 – 70 °C
Durability	>5,000 hours (lab-validated conditions)

THANK YOU

Contact Us

📞 +91 75682 69485

✉ krishparwani@hydromatx.com

🌐 www.hydromatx.com

📍 Jaipur, Rajasthan, India

"Find your best product with HydroMatx!!